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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,130	03/15/2001	Hiroyuki Horiuchi	HIG05 002	4640

7590 11/20/2002

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EXAMINER
DICUS, TAMRA

ART UNIT	PAPER NUMBER
1774	6

DATE MAILED: 11/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-6

Office Action Summary	Application No. 09/808,130	Applicant(s) HORIUCHI, HIROYUKI	
	Examiner Tamra L. Dicus	Art Unit 1775	

-- Th MAILING DATE of this communication app ars on the cov r sh t with th correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2002 (change of address)* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4, 5, 7, 8, 11, and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "same two surfaces" is unclear, as it is confusing as to which same two surfaces applicant is referring to. "Same" appears to reference two different surfaces.

3. Claims 4, 5, 7, 8, 11, and 12 recite the limitation "the recording material back surface" in line 3 of claim 4, line 5 of claim 5, line 3 of claim 7, etc. There is insufficient antecedent basis for this limitation in the claim. The claims do not appear to further limit claim 1 or 9, where applied.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who

has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,631,076 to Hakomori et al.

Hakomori discloses a hot melt ink thermal transfer recording sheet comprising a ink-receiving porous polymer coating layer having a plurality of pores with an average size of 0.5 to 30 micrometers and an apparent density of 0.05 to 0.5 g/cm^3, and formed on a substrate with a coating comprising a polymeric material and fine air producing a laminate of the substrate with the ink-receiving porous polymer coating layer having a thermal conductivity of 0.25 W/(m•K) or less, further comprising a pigment (see col. 2, lines 40-51; col. 3, lines 47-52; col. 4, lines 16-35).

6. Claims 1 and 3 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,261,670 to Hakomori et al.

Hakomori discloses a hot melt ink thermal transfer recording sheet comprising an ink-receiving porous polymer coating layer having a plurality of pores with an average size of 0.5 to 30 micrometers and an apparent density of 0.4 to 0.9 g/cm^3, and formed on a substrate with a coating comprising a polymeric material and fine air producing a laminate of the substrate with

the ink-receiving porous polymer coating layer, optionally comprising a pigment. Although Hakomori doesn't expressly disclose the thermal conductivity, it is an inherent property since the materials are the same, the thermal conductivity of 0.1 - 0.25 W/(m•K) would inherently expected to be the same absent any evidence to the contrary (see col. 4, lines 5-20; col. 5, lines 55-58; col. 6, lines 43+).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,631,076 to Hakomori in view of USPN 5,712,026 to Amagai et al.

Hakomori discloses a hot melt ink thermal transfer recording sheet comprising a ink-receiving porous polymer coating layer having a plurality of pores with an average size of 0.5 to 30 micrometers and an apparent density of 0.05 to 0.5 g/cm^3, and formed on a substrate with a coating comprising a polymeric material and fine air producing a laminate of the substrate with the ink-receiving porous polymer coating layer having a thermal conductivity of 0.25 W/(m•K) or less, further comprising a pigment (see col. 2, lines 40-51; col. 3, lines 47-52; col. 4, lines 16-35).

Although Hakomori discloses the importance of having an appropriate roughness of the ink-receiving layer surface by explaining that roughness influences the close contact of the ink-receiving layer and the ink layer and thus on the quality of the transferred ink images at col. 11,

line 65 - col. 12, line 12, he does not expressly disclose the property of center line average roughness being 0.20 to 0.45 micrometers. However, Amagai teaches an image-receiving sheet for melt transfer recording where the center line average roughness ranging from 0.1 to 0.45 micrometers, which is included in applicant's range of 0.20 to 0.45 micrometers, at col. 7, line 35. Therefore, it would have been obvious to one of ordinary skill in the art to modify the invention of Hakomori by optimizing the melt ink thermal transfer recording sheet to include an ink receiving layer exhibiting center line average roughness of 0.20 to 0.45 micrometers because Hakomori teaches that by having an appropriate roughness, such as 0.20 to 0.45 micrometers as taught by Amagai which is the same as applicant claims, the quality of image can be improved. The limitations of claim 2 are met under 35 U.S.C. 103(a).

9. Regarding claims 3 and 6, Amagai teaches a surface layer where a hot melt ink is transferred (ink receiving layer) comprising a propylene resin made of a stretched propylene film comprising a propylene resin and inorganic fine powder having an average grain diameter of from 0.07 to 0.9 micrometers, which is included in applicant's claimed range of 0.05 to 1 micrometers, at col. 4, lines 15-22. It would have been obvious to one of ordinary skill in the art to modify the sheet of Hakomori by optimizing the melt ink thermal transfer recording sheet to include an ink receiving layer exhibiting an average grain diameter of from 0.05 to 1 micrometers to provide a sharp thermal transfer image, or good ink fixing properties under environmental conditions as taught by Amagai at col. 2, line 18 and 43. The limitations of claims 3 and 6 are met under 35 U.S.C. 103(a).

10. Claims 4-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,631,076 to Hakomori et al., as applied to claim 1 above, in view of USPN 5,712,026 to Amagai et al. and in further view of USPN 5,593,940 to Umise et al.

As discussed above, Hakomori discloses the claimed invention but does not expressly disclosing the property requirements of coefficient of friction between 0.1 and 0.7, dynamic/static friction coefficient of friction of 0.1 to 0.7, and stiffness of 40 to 300 cm^3. Hakomori does explain the measurement of the stiffness property for determining the machine or cross direction of a paper sheet or coated paper sheet can be achieved in a simple manner, by noting the stiffness in the machine direction (longitudinal) will be lower than that in the cross direction at col. 15, lines 17-30. Furthermore, the sheet of Hakomori comprises the same materials and therefore, the dynamic/static friction coefficient of friction of 0.1 to 0.7, and stiffness of 40 to 300 cm^3 would inherently expected to be the same. Furthermore, Umise teaches various comparisons of inks for the backing coatings to the inks used in the recording material layer (see col. 15, lines 19-29) that exhibit several ranges of static and dynamic friction coefficient's in Table 8, which includes applicant's claimed range of static and dynamic friction coefficients of 0.1 to 0.7. Additionally, Amagai teaches using the same polyethylene terephthalate film as applicant at col. 1, line 42 exhibiting a Taber stiffness property ranging from 1 to 60 g•f•cm. Therefore, it would have been obvious to one of ordinary skill in the art to modify the recording sheet of Hakomori to include the following properties:

- Static/Dynamic Friction Coefficients between the two surfaces of ink receiving and recording material as claimed
- Stiffness properties as claimed

because the same resins are being used. Various qualities such as peeling can be further optimized as taught by Umise as shown in Table 8 and col. 17, lines 4-6. Further the absence of sticking, wrinkling, and improvement in time thermal transfer are taught by Umise at col. 16, lines 45-59 for a recording material.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is (703) 305-3809. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (703) 308-0449. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-8329 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Tamra L. Dicus
Examiner
Art Unit 1774

November 18, 2002

CYNTHIA H. KELLY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700